

What Is Claimed Is:

1. A converter system, comprising:
 - a DC bus having a first conductor and a second conductor;
 - a capacitor coupled between the first conductor and the second conductor;
 - a first converter coupled to the DC bus for connection to a utility grid;
 - a contactor, coupled to the first converter, having an open position;
 - a second converter coupled to the DC bus for connection to a load;
 - a control power supply coupled to the DC bus;
 - an isolation transformer; and
 - a rectifier, coupled between the isolation transformer and the DC bus, that provides rectified voltage to the capacitor and the control power supply when the contactor is in the open position.
2. The system of claim 1, wherein the rectifier is a full-wave bridge rectifier.
3. The system of claim 1, wherein the isolation transformer has a turns ratio of 1-to-1.
4. The system of claim 1, wherein the isolation transformer couples the rectifier to a single phase of the utility grid.
5. The system of claim 1, wherein the isolation transformer couples the rectifier to multiple phases of the utility grid.
6. The system of claim 1, further comprising:
 - a circuit protection device coupled to the isolation transformer.

7. The system of claim 1, wherein the circuit protection device comprises a circuit breaker.

8. The system of claim 1, wherein the circuit protection device comprises a fuse.

9. The system of claim 1, wherein the second converter is a DC-to-DC converter.

10. The system of claim 1, wherein the second converter is a DC-to-AC converter.

11. The system of claim 1, further comprising:

a third converter coupled to the DC bus for connection to a load.

12. The system of claim 1, further comprising:

a filter coupled to the contactor.

13. A method for pre-charging the DC bus of a utility grid connected converter system, wherein the converter system includes a DC bus, a capacitor coupled to the DC bus, a rectifier coupled to the DC bus, an isolation transformer coupled to the rectifier, a utility-side converter coupled to the DC bus, and a contactor coupled to the utility-side converter, the contactor having an open position, the method comprising:

- (a) coupling the isolation transformer to the utility grid;
- (b) generating a rectified voltage at an output of the rectifier; and
- (c) supplying rectified voltage from the rectifier to the capacitor when the contactor is in the open position.

14. The method of claim 13, wherein the converter system further comprises a control power supply coupled to the DC bus, the method further comprising:

(d) supplying rectified voltage from the rectifier to the control power supply when the contactor is in the open position.

15. The method of claim 13, wherein step (a) comprises:

coupling the isolation transformer to a single phase of the utility grid.

16. The method of claim 13, wherein step (a) comprises:

coupling the isolation transformer to multiple phases of the utility grid.

17. The method of claim 13, wherein step (a) comprises:

coupling an isolation transformer having a 1-to-1 turns ration to the utility grid.

18. The method of claim 13, wherein step (b) comprises:

generating the rectified voltage with a full-wave bridge rectifier.